

DETAILED ACTION

Election/Restrictions

Applicant's election **without traverse** of claims 1-6 in the reply filed on 02/06/2008 is acknowledged. **Claim(s) 7-11** are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group. Election was made **without traverse** in the reply filed on 02/06/2008.

The elected claim 5 does not read on the elected embodiment 1 corresponding to Figures 1-4, but on the unelected embodiment of Figures 11-13. See FIGs. 12-13, 83a & 83b for the features of "relatively high" and "relatively low" impurity concentrations claimed in claim 5. Therefore claim 5 is withdrawn from further consideration.

The elected claim 6 does not read on the elected embodiment 1 corresponding to Figures 1-4, but on the unelected embodiment of Figures 7-10. See FIGs. 8-10, 64a & 64b for the features of "relatively thick" and "relatively thin" insulating film claimed in claim 6. Therefore claim 6 is withdrawn from further consideration.

In the interview on 04/09/2008, the attorney of record Richard T. Ogawa has agreed to cancel claims 5 & 6.

Drawings

1. The drawings are objected to because of how the feature 14 is drawn in FIGs 2-4. In FIGs 2 & 3, the feature 14 is **at least touching both** features 33 neighboring it. FIG. 4 is supposed to be an X-X cut of FIG. 2. However, in FIG. 4 the feature 14 is **at least touching only one** of the two neighboring features 33. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.

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Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim(s) 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim limitations of “a first region, in which said third semiconductor region occupies said second semiconductor region at a first rate, is formed at a center of said semiconductor base, and a second region, in which said third semiconductor region occupies said second semiconductor region at a second rate larger than said first rate, is formed at a circumference of said semiconductor base so as to enclose said first region”, are cited as

misdescriptive (see MPEP 1503.01). In the description of FIG. 1, the Applicant discloses two sizes for the **regions 14** (claimed as “third region”). The smaller **regions 14** are located in the center of the device. The larger **regions 14** are located on the periphery of the device. This is in a stark contrast to claim 1, where Applicant claims **a single region** (that has a small size in the middle of the device and a large size on the periphery of the device).

The claim limitations of “a first electrode formed on said second semiconductor region sandwiched between said first semiconductor region and said third semiconductor region”, as recited in claim(s) 1, are unclear how “a first electrode” is sandwiched between “said first semiconductor region and said third semiconductor region”, when “a first electrode” is clearly above the “said first semiconductor region and said third semiconductor region”.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claim(s) 1-4, as best understood**, are rejected under 35 U.S.C. 102(b) as being anticipated by (JP-2004-228553) by Torii et al (“Torii”).

Regarding claim 1, Torii discloses in FIG. 2 and related text a semiconductor device, comprising: a semiconductor base (11-14) comprising a first semiconductor region (11) having a first conductivity type, a second semiconductor region (13) having a second conductivity type formed in a surface region of said first semiconductor region, and a third semiconductor region (14) having the first conductivity type formed in a surface region of said second semiconductor

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region; and a first electrode (31) formed on said second semiconductor region sandwiched between said first semiconductor region and said third semiconductor region, wherein: a first region (inner portion of 14), in which said third semiconductor region occupies said second semiconductor region at a first rate (area), is formed at a center of said semiconductor base, and a second region (outer portion of 14), in which said third semiconductor region occupies said second semiconductor region at a second rate (volume) larger than said first rate, is formed at a circumference of said semiconductor base so as to enclose said first region.

Regarding claim 2, Torii discloses in FIG. 2 and related text there are a plurality of said third semiconductor region (14), which are formed to be spaced from each other.

Regarding claim 3, Torii discloses in FIG. 2 and related text said second semiconductor region (13) is formed in a belt shape (see FIG. 1(b)).

Regarding claim 4, Torii discloses in FIG. 2 and related text a plurality of said second semiconductor region (13), which are formed side by side with a space therebetween (see FIG. 1(b)).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Belousov whose telephone number is 571-270-3209.

The examiner can normally be reached on Monday - Thursday 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Gurley can be reached on 571-272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alexander Belousov/
Examiner, Art Unit 2811
04/10/2008

/Ori Nadav/
Primary Examiner, Art Unit 2811